We Claim:

1. A method of transporting information from a first sub-network to a second sub-network via a third sub-network in a transmission network, wherein information is transported between nodes in the transmission network in frames, each of the frames including a header and a payload, wherein a node generates a header for each frame transmitted from the node and wherein the node completely copies payload data from an incoming frame to one or more outgoing frames, and wherein the payload data is allowed to float relative to frames, the method comprising:

copying a first part of a header into payload of a frame upon crossing a first boundary between the first sub-network and the third sub-network such that available space is created in the payload by not copying a second part of the header therein;

in the third sub-network, using a reduced-size header that fits into the available space in the payload; and

upon crossing a second boundary between the third sub-network and the second sub-network, retrieving the first part of the header and the reduced-size header from the payload and generating header information in the second sub-network.

2. The method according to claim **1**, wherein headers and payload data from a plurality of frames carried by the first sub-network are multiplexed into a common frame carried by the third sub-network, the common frame carrying an integer multiple of information carried per frame in the first sub-network, wherein unoccupied space remains in the common frame by not copying a second part of the headers from the plurality of frames into payload of the common frame, wherein a header of the common frame is maintained at a prescribed size such that a header of an outgoing frame fits in the unoccupied space.

3. The method according to claim **2**, wherein the second part of the headers from the plurality of frames that is not copied to the payload of the common frame includes synchronization information.

4. The method according to claim **1**, further comprising:

adding timing information to the payload when crossing the first boundary, the timing information indicating an extent to which a frame duration in the first sub-

using the timing information to regenerate frames in the second sub-network upon crossing the second boundary, so that frames in the second sub-network have substantially the same duration as corresponding frames in the first sub-network.

5. Apparatus for transferring information between sub-networks in a transmission network, wherein information is transported between nodes in the transmission network in frames that each include a header and a payload, wherein a node generates a header for each frame transmitted from the node and wherein the node completely copies payload data from an incoming frame to one or more outgoing frames, wherein the payload data is allowed to float relative to frames, the apparatus comprising:

means for copying a first part of a header from an incoming frame into payload of an outgoing frame such that available space is created in the payload by not copying a second part of the header therein; and

means for generating a reduced-size header that fits into the available space in the payload of the outgoing frame.

6. The apparatus according to claim **5**, wherein headers and payload data from a plurality of frames carried by a first sub-network are multiplexed into a common outgoing frame, the common outgoing frame carrying an integer multiple of the information carried per incoming frame, wherein unoccupied space is created in the common outgoing frame by not copying a second part of the headers from the plurality of frames to payload of the common outgoing frame, and wherein the header of the common outgoing frame is maintained at a prescribed size so that a header of the common outgoing frame fits into the unoccupied space.

7. The apparatus according to claim **6**, wherein the second part of the headers from the plurality of frames that is not copied into the payload of the common outgoing frame includes synchronization information.

8. The apparatus according to claims **5**, further comprising means for adding timing information to the payload of the outgoing frame, the timing information indicating an extent to which an incoming frame duration differs from an outgoing frame duration.

9. A method of transporting information between sub-networks in a transmission network, wherein information is transported between nodes in the transmission network in frames, each of the frames including a header and a payload, wherein a node generates a header for each frame transmitted from the node and wherein the node completely copies payload data from an incoming frame to one or more outgoing frames, and wherein the payload data is allowed to float relative to frames, the method comprising:

at a node, generating outgoing headers in outgoing frames from payload data of incoming frames and from additional data generated within the node.

10. The method according to claim **9**, further comprising demultiplexing an incoming common frame into a plurality of outgoing frames, the common frame carrying an integer multiple of the information carried per outgoing frame.

11. The method according to claim **9**, wherein the additional data includes synchronization information.

12. The method according to claim **9**, wherein timing information from the payload data is used to adjust a frame duration of the outgoing frames to reconstitute a frame duration of an original frame encoded in an incoming frame.

13. A system for transporting information from a first sub-network to a second sub-network via a third sub-network in a transmission network, wherein information is transported between nodes in the transmission network in frames, each of the frames including a header and a payload, wherein a node generates a header for each frame transmitted from the node and wherein the node completely copies payload data from an incoming frame to one or more outgoing frames, and wherein the payload data is allowed to float relative to frames, the system comprising:

in the first sub-network, a means for copying a first part of a header into payload of a frame for transmission across a first boundary between the first sub-network and the third sub-network, wherein available space is created in the payload by not copying a second part of the header therein, and wherein a reduced-size header is used in the third sub-network, the reduced-size header having a prescribed size that fits into the available space in the payload; and

in the second sub-network, a means for retrieving the first part of the header and the reduced-size header from the payload and generating header information in the second sub-network.

14. The system according to claim **13**, further comprising an interleaver for multiplexing headers and payload data from a plurality of frames carried by the first sub-network into a common frame carried by the third sub-network, the common frame carrying an integer multiple of information carried per frame in the first sub-network, wherein unoccupied space remains in the common frame by not copying a second part of the headers from the plurality of frames into payload of the common frame, wherein a header of the common frame is maintained at a prescribed size such that a header of an outgoing frame fits in the unoccupied space.

15. The system according to claim **14**, wherein the second part of the headers from the plurality of frames that is not copied to the payload of the common frame includes synchronization information.

16. The system according to claim **13**, further comprising:

one or more rate adapters in the first sub-network to add timing information to the payload when crossing the first boundary, the timing information indicating an extent to which a frame duration in the first sub-network differs from a frame duration in the third sub-network; and

one or more rate adapters in the second sub-network for regenerating frames in the second sub-network, so that frames in the second sub-network have substantially the same duration as corresponding frames in the first sub-network.